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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/673,734

Applicant(s)

LAVELLE ET AL.

Examiner

PATRICK A. RYAN

Art Unit

2427

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-38 and 40-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-38 and 40-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is made in reply to Request for Continued Examination, filed August 7, 2009. Applicant has amended Claims 29, 58, and 59; no claims have been canceled; and no claims have been added. As amended, Claims 29-38 and 40-59 are presented for examination.

2. In Office action of April 14, 2009 ("Office Action"):

Claims 29-36, and 40-59 were rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy US Patent (5,610,822) in view of Mathias et al. International Application Publication (WO 00/38951 A1) "Mathias" and Sitnik US Patent (6,300,880 B1).

Claim 37 was rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy, Mathias, and Sitnik as applied to Claim 29, and further in view of Berry et al. US Patent (5,311,302) "Berry".

Claim 38 was rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy, Mathias, and Sitnik teach the entertainment unit of Claim 29, and further in view of Motcki et al. US Patent (6,243,645 B1) "Motcki".

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 14, 2009 ("Reply") has been entered.

Response to Arguments

4. Applicant's arguments, see Reply Pages 10-12, with respect to claims 29, 58, and 59 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 29-36, and 40-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy US Patent (5,610,822) in view of Mathias et al. International Application Publication (WO 00/38951 A1) "Mathias", Sitnik US Patent (6,300,880 B1), and Yamada et al. US Patent (6,614,912 B1) "Yamada".

7. In regards to Claim 29, Murphy teaches an entertainment unit for a vehicle (shown in Fig. 3, as described in Col. 5 Lines 8-21), comprising: a bus adapted to couple at least one of video and audio signals from each of a plurality of input devices,

wherein the bus comprises a video bus and an audio bus (scheduler/controller 24, as described in Col. 4 Lines 22-33 is use to interface the various input and output devices by way of lines 29, 31, 33, 35, and 37); and

at least two transmitters (Scheduler/Controller 24, transmits video and audio by way of Lines 35 and 37, as described in Col. 3 Lines 3-15; with further reference to Audio Component 36 of Figs. 2 and 3 that is accessible by each passenger, as described in Col. 3 Lines 34-54) adapted to simultaneously transmit a plurality of audio programs to a plurality of headphone sets (audio Line 37 provides multiple audio feeds to multiple Headsets 40a-40n, as shown in Fig. 2 and described in Col. 3 Lines 16-33), wherein the at least two transmitters each comprise at least one multiplexer adapted to select, through a SELECT (SEL) input, an input device of the plurality of input devices (Audio and video selection signals are generated by Processor 18 and User Input Controls 32, which are used to control the selection and transmission of audiovisual material to each individual user by way of Scheduler/Controller 24, as described in Col. 3 Line 34—Col. 4 Line 59. In addition, audiovisual can be selected and transmitted from a variety of sources, such as Video Unit 26, CD ROM Unit 28, and CD Unit 30, as disclosed in Col. 4 Lines 22-35. The selection and transmission process is further demonstrated by the examples shown in Fig. 5A-5F, as described in Col. 5 Line 22—Col. 6 Line 44); and a splitter connected to the audio bus, wherein the splitter splits the audio signals and provides the audio signals to both of the at least two transmitters (Audio Component 36 of Figs. 2 and 3 functioning to accommodating a plurality of users simultaneously, i.e. Headphones 40a-40n, as disclosed in Col. 3 Lines 3-55).

Murphy teaches a display device that is mounted on the back of each seat of the vehicle (as shown in Fig. 3). The display device is operatively coupled to the video bus and adapted to reproduce the video signals (as seen in Fig. 2, scheduler/controller 24 is in connection with display units 34a-34n by way of line 35, as described in Col. 3 Lines 10-15), but Murphy does not teach that an assembly housing disposed in an interior of the vehicle or at least one display device that is houseable in the assembly.

In a similar field of invention, Mathias teaches a video display system, as shown in Figures 7a-7c, 9, and 10, for use within a vehicle. These figures depict a video display system that can be coupled to a docking member. The docking member is in turn movably coupled to a console that may be mounted at many places within the vehicle (as disclosed on Page 3 Lines 11-14, with reference to Figure 9). In addition, the console may be mounted to the headliner of the vehicle and a latch on the back of the docking member holds the video display system in a retracted or stowed position (as disclosed on Page 3 Lines 15-16, with reference to Figure 10). The latch assembly permits the video display unit to be uncoupled from the docking member (as disclosed Page 3 Lines 16-18, with reference to Figures 7a-7c).

Both Murphy and Mathias teach the distribution of audio signals by way of wired means (headphones 40a-40n connected to audio component 36, as shown by Murphy in Fig. 2; and connectors 122 as shown in Figure 9 of Mathias), but the combination of Murphy and Mathias does not teach at least one wireless transmitter operatively coupled to the audio bus that is adapted to wirelessly and simultaneously transmit a plurality of audio programs to a plurality of wireless headphone sets.

In a similar field of invention, Sitnik teaches the audio distribution system shown in Figs. 1 and 2. Sitnik discloses in Col. 11 Lines 18-25 that the system of Figs. 1 and 2 may be implemented using wired or wireless technology. In addition, the system of Figs. 1 and 2 is capable of accommodating multiple users simultaneously, as disclosed in Col. 13 Lines 14-16, and is capable of transmitting a multitude of audio signals simultaneously, as disclosed in Col 11, Lines 45-67. Sitnik further discloses that a cellular-type system can use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fixed and mounted entertainment unit of Murphy to be used as a portable and wireless unit, as taught by Mathias and Sitnik because the user would then have the ability to position the entertainment unit at a customized location. The wireless and self-contained unit taught by Murphy, in view of Mathias and Sitnik would therefore provide the user with an increased mobility because the unit would not be restricted by wires or permanently mounted to a surface (these aspects are discussed by Mathias on Page 2 Lines 19-21).

Sitnik additionally discloses that the audio distribution system can wirelessly transmit audio signals using infrared LED band and 100 MHz, 300 MHz, 450 MHz, 900 MHz, and 1.6 GHz band FM systems (Col. 13 Lines 58-66; with further reference to Col. 11 Lines 19-24). Sitnik also discloses the transmission of high fidelity stereo and digital stereo signals (Col. 11 Lines 35-44). However, Sitnik does not explicitly disclose that

the transmitter transmits the selected audio output on left and right frequencies, the left and right frequencies being different from each other and ranging from approximately 2.3 MHz to approximately 3.0 MHz.

In a similar field of invention, Yamada teaches a sound reproducing device transmitting a 2-channel audio signal for reproduction by a 2-channel speaker system, such as earphones (Abstract). In a similar fashion to Sitnik, Yamada's transmitter (Adapter 10 of Fig. 11) uses infrared to wirelessly distribute audio signals to Headphones 10 (Fig. 1, as described in Col. 4 Lines 24-43 and Col. 10 Lines 31-65). Yamada also demonstrates the use of different carrier frequencies for the left (SL) and right (SR) speakers of the headphones, where the SL is transmitted at 2.3 MHz and SR is transmitted at 2.8 MHz (as disclosed in Col. 10 Lines 42-60).

Both Sitnik and Yamada teach similar techniques for distributing stereo audio signals to wireless headphone units using infrared signals. Sitnik demonstrates the use of infrared signals ranging from 100 MHz to 2.6 GHz. Yamada also demonstrates that the use of infrared signals within 2.3 MHz to 3.0 MHz is a viable design choice for wireless audio distribution. In view of the teachings of Yamada, one of ordinary skill in the art at the time of the invention would have found it obvious to try different frequency ranges for audio distribution in the system of Sitnik in order to avoid transmission channels experiencing interference.

8. In regards to Claim 30, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein the wireless signals are at least one

of radio frequency and infrared signals (Sinik discloses the use of radio frequency, infrared, and ultrasonic methods of wireless transmission, Col. 11 Lines 19-24).

9. In regards to Claim 31, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein the plurality of input devices comprise at least one of a television tuner, a video cassette player (VCP), a compact disk (CD) player, a digital video disk (DVD) player, an AM/FM radio, and a video game player (Murphy teaches video unit 26, CD ROM unit 28, and CD unit 30, as disclosed in Col. 4 Lines 22-35).

10. In regards to Claim 32, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein the plurality of input devices comprises an external audio/video signal processor adapted to input at least one of the audio signals and the video signals from an external source (Sitnik teaches a barcode scanner that, when used to scan the barcode of a CD for example, causes CD jukebox 11 to transmit the audio signal to headphones 36, as disclosed in Col. 22 Lines 16-52; with further reference to Col. 20 Lines 43-56).

11. In regards to Claim 33, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 32, wherein the external source is a portable media device (Sitnik discloses that the barcode scanning device may be attached to wireless headphones, as disclosed in Col. 20 Lines 43-56).

12. In regards to Claim 34, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, further comprising signal processing facilities adapted to perform at least one of signal processing and signal conversion, with respect

to at least one of the audio signals and the video signals (Sitnik teaches a number of signal processing and signal conversion techniques, such as various signal modulation schemes, as disclosed in Col. 12 Lines 11-49).

13. In regards to Claim 35, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein said at least one display device is mounted in the entertainment unit in one of a non-fixed configuration and a fixed configuration (Mathias teaches a display device that may be mounted in a fixed position, as shown in Fig. 9 and 10 or a non-fixed position, as shown in Fig 7a-7c).

14. In regards to Claim 36, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to claim 29, wherein said at least one display device employs one of a liquid crystal display (LCD), light emitting diodes (LEDs), and a gas plasma (Mathias teaches a display unit that is a Liquid Cristal Display, as disclosed on Page 3 Lines 2-6).

15. In regards to Claim 40 and 41, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein said at least two wireless transmitters are each adapted to wirelessly transmit the plurality of audio programs to each of the plurality of wireless headphone sets as a left audio channel and a right audio channel (Sitnik discloses the transmission of high fidelity stereo and digital stereo signals, as disclosed in Col. 11 Lines 35-44; with further reference to cellular-type system that may use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48. Yamada also demonstrates the use of different carrier frequencies for the left (SL)

and right (SR) speakers of the headphones, where the SL is transmitted at 2.3 MHz and SR is transmitted at 2.8 MHz, as disclosed in Col. 10 Lines 42-60).

16. In regards to Claim 42, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein said at least two wireless transmitters are each adapted to wirelessly transmit the plurality of audio programs to each of the plurality of wireless headphone sets as a left audio channel and a right audio channel (Sitnik discloses the transmission of high fidelity stereo and digital stereo signals, as disclosed in Col. 11 Lines 35-44; with further reference to cellular-type system that may use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48. Yamada also demonstrates the use of different carrier frequencies for the left (SL) and right (SR) speakers of the headphones, where the SL is transmitted at 2.3 MHz and SR is transmitted at 2.8 MHz, as disclosed in Col. 10 Lines 42-60), each of the channels having a different frequency for each of the plurality of wireless headphone sets (Sitnik discloses a digitally tuned receiver that uses spread spectrum transmission to dynamically assign channels to each of the wireless headphones, as disclosed in Col. 14 Lines 27-46. In addition, Sitnik's receivers may use phase lock loop (PLL) technology in order to lock onto a given frequency within the channel, as disclosed in Col. 47-65).

17. In regards to Claim 43, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein the at least two wireless transmitters each comprises an optical transmitting device and at least one of said plurality of

wireless headphone sets comprises a photosensitive device (Sitnik depicts infrared signal receiver 18 of Fig. 1, as disclosed in Col. 22 Lines 36-39; with further reference to the "photodetector" discussed in Col. 13 Lines 22-33 and cellular-type system that may use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48).

18. In regards to Claim 44, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein said at least one wireless transmitter and at least one of said plurality of wireless headphone sets comprises an antenna (Sitnik teaches antenna 17 of transmission device shown in Fig. 1 and stereo HI FI headphones 36, shown in Fig. 2, consists of receiver electronics antenna 28 and transmitter electronics antenna 29).

19. In regards to Claim 45, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein at least one of the plurality of wireless headphone sets comprises a digital-to-analog converter (Sitnik disclose the transmission of digital audio signals, in conjunction with digital PLL tuner 27 of Fig. 2, as described in Col. 15 Lines 2-26. In addition, since the audio signal is received in digital format and stereo HI FI headphones 36 operate in an analog environment, a digital to analog converter must be provided within Sitnik's wireless receiver shown in Fig. 2).

20. In regards to Claim 46, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein said at least two wireless transmitters are adapted to transmit the plurality of audio programs based on Code-Division Multiple

Access (CDMA) technology (Sitnik discloses a digitally tuned receiver that uses spread spectrum transmission to dynamically assign channels to each of the wireless headphones; with further reference to cellular-type system that may use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48. In addition, each receiver may be assigned an address code, as disclosed in Col. 14 Lines 27-46. These elements are well known in the art to be associated with the Code Division Multiple Access transmission techniques).

21. In regards to Claim 47, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 46, wherein each of the plurality of wireless headphone sets comprises a selector for selecting one of the plurality of audio programs for audio reproduction (Sitnik discloses various techniques for selecting from multiple signals incoming to the receiver, such as an electronically controlled channel selector, Col. 15 Lines 18-53).

22. In regards to Claim 48, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein the at least two wireless transmitters are capable of simultaneously transmitting the plurality of audio programs at different respective frequencies (Sitnik discloses in Col. 12 Lines 11-21 "a large selection of material is simultaneously transmitted over a block of bands" using a broadband transmitter to transmit the signals in a single transmission; with further reference to cellular-type system that may use multiple transmitters accommodating multiple user

selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48).

23. In regards to Claim 49, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 48, wherein the plurality of wireless headphone sets are capable of receiving on a plurality of channels the plurality of audio programs transmitted at the different respective frequencies (Sitnik further discloses in Col. 12 Lines 11-21 the large selection of material that is simultaneously transmitted may be individually tuned by mobile receivers in order to output the content, at the desired channel frequency, to the headphones).

24. In regards to Claim 50, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 49, wherein each of the plurality of wireless headphone sets includes a multiplexer for selecting one of the plurality of channels corresponding to one of the plurality of audio programs (Sitnik teaches an "electronically controlled channel selector to dynamically select the channel through which the information is received" Col. 15 Lines 31-33).

25. In regards to Claim 51, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, further comprising at least one other display device operatively coupled to the video bus (Murphy teaches multiple displays 34a-34n connected to line 35 as shown in Fig. 2, as discussed in Col. 3 Lines 22-25).

26. In regards to Claim 52, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 51, wherein the at least one other display device is capable of displaying a first video program from one of said plurality of input devices

at the same time the at least one display device displays a second video program from another one of the plurality of input devices (Murphy discloses in Col. 4 Lines 5-15 “multiple users can simultaneously view different pre-recorded video images” on display units 34a-34n).

27. In regards to Claim 53, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 51, wherein the at least one other display device includes at least one other wireless transmitter operatively coupled to the audio bus; and the at least one other wireless transmitter is capable of transmitting a first audio program from one of the plurality of input devices at the same time at least one of the other two wireless transmitter transmits a second audio program from another one of the plurality of input devices (Sitnik discloses a cellular-type system that may use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48).

28. In regards to Claim 54, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 53, wherein the first audio program is transmitted on a first frequency and the second audio program is transmitted on a second frequency (Sitnik further discloses in Col. 13 Lines 6-16 that multiple channels can be provided for use and reuse; with further reference to Col. 13 Line 58—Col. 14 Line 65).

29. In regards to Claim 55, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 51, wherein the at least one other display device is positioned remote from the assembly housing (Mathias teaches a display device which may be movably coupled to a console or a docking member and therefore has

the ability to be mounted at many places within the vehicle, as disclosed in Col. 2 Lines 20-31).

30. In regards to Claim 56, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 29, wherein a first transmitter of the at least two wireless transmitters is capable of transmitting a first audio program from one of said plurality of input devices at the same time a second transmitter of the at least two wireless transmitters transmits a second audio program from another one of said plurality of input devices (Sitnik discloses a cellular-type system that may use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48).

31. In regards to Claim 57, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit according to Claim 56, wherein the first audio program is transmitted on a first frequency and the second audio program is transmitted on a second frequency (Sitnik further discloses in Col. 13 Lines 6-16 that multiple channels can be provided for use and reuse; with further reference to Col. 13 Line 58—Col. 14 Line 65).

32. In regards to Claim 58, Murphy teaches an entertainment unit for a vehicle (shown in Fig. 3, as described in Col. 5 Lines 8-21), comprising:

33. a video bus adapted to couple video signals from at least some of a plurality of input devices (line 35 of Fig. 2 connecting video unit 26, by way of scheduler/controller 24, to multiple display units 34a-34n, as described in Col. 3 Lines 3-34);

an audio bus adapted to couple audio signals from at least some of the plurality of input devices (line 37 of Fig. 2 connecting units 29 and 31, by way of scheduler/controller 24, to multiple headphone units 40a-40n, as described in Col. 3 Lines 3-34); and

at least two transmitters (Scheduler/Controller 24, transmits video and audio by way of Lines 35 and 37, as described in Col. 3 Lines 3-15; with further reference to Audio Component 36 of Figs. 2 and 3 that is accessible by each passenger, as described in Col. 3 Lines 34-54) adapted to simultaneously transmit a plurality of audio programs to a plurality of headphone sets (audio Line 37 provides multiple audio feeds to multiple Headsets 40a-40n, as shown in Fig. 2 and described in Col. 3 Lines 16-33), wherein the at least two transmitters each comprise at least one multiplexer adapted to select, through a SELECT (SEL) input, an input device of the plurality of input devices (Audio and video selection signals are generated by Processor 18 and User Input Controls 32, which are used to control the selection and transmission of audiovisual material to each individual user by way of Scheduler/Controller 24, as described in Col. 3 Line 34—Col. 4 Line 59. This process is further demonstrated by the examples shown in Fig. 5A-5F, as described in Col. 5 Line 22—Col. 6 Line 44); and a splitter connected to the audio bus, wherein the splitter splits the audio signals and provides the audio signals to both of the at least two wireless transmitters (Audio Component 36 of Figs. 2 and 3 functioning to accommodating a plurality of users simultaneously, i.e. Headphones 40a-40n, as disclosed in Col. 3 Lines 3-55).

Murphy teaches a display device that is mounted on the back of each seat of the vehicle (as shown in Fig. 3). The display device is operatively coupled to the video bus and adapted to reproduce the video signals (as seen in Fig. 2, scheduler/controller 24 is in connection with display units 34a-34n by way of line 35, as described in Col. 3 Lines 10-15), but Murphy does not teach that an assembly housing disposed in an interior of the vehicle or at least one display device that is houseable in the assembly.

In a similar field of invention, Mathias teaches a video display system, as shown in Figures 7a-7c, 9, and 10, for use within a vehicle. These figures depict a video display system that can be coupled to a docking member. The docking member is in turn movably coupled to a console that may be mounted at many places within the vehicle (as disclosed in Col. 2 Lines 20-25, with reference to Figure 9). In addition, the console may be mounted to the headliner of the vehicle and a latch on the back of the docking member holds the video display system in a retracted or stowed position (as disclosed in Col. 2 Lines 25-28, with reference to Figure 10). The latch assembly permits the video display unit to be uncoupled from the docking member (as disclosed in Col. 2 Lines 28-31, with reference to Figures 7a-7c).

Both Murphy and Mathias teach the distribution of audio signals by way of wired means (headphones 40a-40n connected to audio component 36, as shown by Murphy in Fig. 2; and connectors 122 as shown in Figure. 9 of Mathias). In addition, Murphy teaches transmitting a plurality of audio programs from a plurality of input devices (audio supplied by units 28 and 30 to headphone sets 40a-40n, as described in Col. 4 Lines 23-36).

The combination of Murphy and Mathias does not teach at least one wireless transmitter operatively coupled to the audio bus that is adapted to wirelessly and simultaneously transmit a plurality of audio programs to a plurality of wireless headphone sets.

In a similar field of invention, Sitnik teaches the audio distribution system shown in Figs. 1. Sitnik discloses in Col. 11 Lines 18-25 that the system of Figs. 1 and 2 may be implemented using wired or wireless technology. In addition, the system of Figs. 1 and 2 is capable of accommodating multiple users simultaneously, as disclosed in Col. 13 Lines 14-16, and is capable of transmitting a multitude of audio signals simultaneously, as disclosed in Col 11, Lines 45-67. Sitnik further discloses that a cellular-type system can use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fixed and mounted entertainment unit of Murphy to be used as a portable and wireless unit, as taught by Mathias and Sitnik because the user would then have the ability to position the entertainment unit at a customized location. The wireless and self-contained unit taught by Murphy, in view of Mathias and Sitnik would therefore provide the user with an increased mobility because the unit would not be restricted by wires or permanently mounted to a surface (these aspects are discussed by Mathias on Page 2 Lines 19-21). In addition, the use of multiple input devices, as taught by Mathias, would provide each user the option to select a desired audio program without

affecting the other users in the system. The multiple input devices would therefore further increase the customization of the entertainment unit by allowing the user to make personalized audio selections.

Sitnik additionally discloses that the audio distribution system can wirelessly transmit audio signals using infrared LED band and 100 MHz, 300 MHz, 450 MHz, 900 MHz, and 1.6 GHz band FM systems (Col. 13 Lines 58-66; with further reference to Col. 11 Lines 19-24). Sitnik also discloses the transmission of high fidelity stereo and digital stereo signals (Col. 11 Lines 35-44). However, Sitnik does not explicitly disclose that the transmitter transmits the selected audio output on left and right frequencies, the left and right frequencies being different from each other and ranging from approximately 2.3 MHz to approximately 3.0 MHz.

In a similar field of invention, Yamada teaches a sound reproducing device transmitting a 2-channel audio signal for reproduction by a 2-channel speaker system, such as earphones (Abstract). In a similar fashion to Sitnik, Yamada's transmitter (Adapter 10 of Fig. 11) uses infrared to wirelessly distribute audio signals to Headphones 10 (Fig. 1, as described in Col. 4 Lines 24-43 and Col. 10 Lines 31-65). Yamada also demonstrates the use of different carrier frequencies for the left (SL) and right (SR) speakers of the headphones, where the SL is transmitted at 2.3 MHz and SR is transmitted at 2.8 MHz (as disclosed in Col. 10 Lines 42-60).

Both Sitnik and Yamada teach similar techniques for distributing stereo audio signals to wireless headphone units using infrared signals. Sitnik demonstrates the use of infrared signals ranging from 100 MHz to 2.6 GHz. Yamada also demonstrates that

the use of infrared signals within 2.3 MHz to 3.0 MHz is a viable design choice for wireless audio distribution. In view of the teachings of Yamada, one of ordinary skill in the art at the time of the invention would have found it obvious to try different frequency ranges for audio distribution in the system of Sitnik in order to avoid transmission channels experiencing interference.

34. In regards to Claim 59, Murphy teaches an entertainment unit for a vehicle (shown in Fig. 3, as described in Col. 5 Lines 8-21), comprising an audio bus adapted to couple audio signals from at least two input devices (line 37 of Fig. 2 connecting units 29 and 31, by way of scheduler/controller 24, to multiple headphone units 40a-40n, as described in Col. 3 Lines 3-34); and

two transmitter (Scheduler/Controller 24, transmits video and audio by way of Lines 35 and 37, as described in Col. 3 Lines 3-15; with further reference to Audio Component 36 of Figs. 2 and 3 that is accessible by each passenger, as described in Col. 3 Lines 34-54) adapted to simultaneously transmit a plurality of audio programs to a plurality of headphone sets (audio Line 37 provides multiple audio feeds to multiple Headsets 40a-40n, as shown in Fig. 2 and described in Col. 3 Lines 16-33), wherein the two transmitters each comprises at least one multiplexer adapted to select, through a SELECT (SEL) input, an input device of the plurality of input devices (Audio and video selection signals are generated by Processor 18 and User Input Controls 32, which are used to control the selection and transmission of audiovisual material to each individual user by way of Scheduler/Controller 24, as described in Col. 3 Line 34—Col. 4 Line 59.

This process is further demonstrated by the examples shown in Fig. 5A-5F, as described in Col. 5 Line 22—Col. 6 Line 44); and

a splitter connected to the audio bus, wherein the splitter splits the audio signals and provides the audio signals to both of the at least two wireless transmitters (Audio Component 36 of Figs. 2 and 3 functioning to accommodating a plurality of users simultaneously, i.e. Headphones 40a-40n, as disclosed in Col. 3 Lines 3-55).

Murphy teaches a display device that is mounted on the back of each seat of the vehicle (as shown in Fig. 3). The display device is operatively coupled to the video bus and adapted to reproduce the video signals (as seen in Fig. 2, scheduler/controller 24 is in connection with display units 34a-34n by way of line 35, as described in Col. 3 Lines 10-15), but Murphy does not teach that an assembly housing disposed in an interior of the vehicle.

In a similar field of invention, Mathias teaches a video display system, as shown in Figures 7a-7c, 9, and 10, for use within a vehicle. These figures depict a video display system that can be coupled to a docking member. The docking member is in turn movably coupled to a console that may be mounted at many places within the vehicle (as disclosed in Col. 2 Lines 20-25, with reference to Figure 9). In addition, the console may be mounted to the headliner of the vehicle and a latch on the back of the docking member holds the video display system in a retracted or stowed position (as disclosed in Col. 2 Lines 25-28, with reference to Figure 10). The latch assemble permits the video display unit to be uncoupled from the docking member (as disclosed in Col. 2 Lines 28-31, with reference to Figures 7a-7c).

Both Murphy and Mathias teach the distribution of audio signals by way of wired means (headphones 40a-40n connected to audio component 36, as shown by Murphy in Fig. 2; and connectors 122 as shown in Figure. 9 of Mathias). In addition, Murphy teaches transmitting a plurality of audio programs from at least two input devices (audio supplied by units 28 and 30 to headphone sets 40a-40n, as described in Col. 4 Lines 23-36). Murphy further teaches transmitting audio signals from the at least two input devices to the at least two headphone sets wherein each audio signal is from a different source (as disclosed in Col. 4 Lines 1-36). The combination of Murphy and Mathias does not teach at least two wireless transmitters adapted to wirelessly and simultaneously transmit a plurality of audio programs to a plurality of wireless headphone sets, so that each wireless headphone sets receives an audio signal from a different one of the at least two input devices.

In a similar field of invention, Sitnik teaches the audio distribution system shown in Figs. 1. Sitnik discloses in Col. 11 Lines 18-25 that the system of Figs. 1 and 2 may be implemented using wired or wireless technology. In addition, the system of Figs. 1 and 2 is capable of accommodating multiple users simultaneously, as disclosed in Col. 13 Lines 14-16, and is capable of transmitting a multitude of audio signals simultaneously at different transmitting frequencies using a phase lock loop tuned receiver, as disclosed in Col 11, Lines 45-67. Sitnik further discloses that a cellular-type system can use multiple transmitters accommodating multiple user selections, such as the transmitters of Figs. 3 and 4, as described in Col. 12 Lines 62-67 and Col. 13 Lines 1-48.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fixed and mounted entertainment unit of Murphy to be used as a portable and wireless unit, as taught by Mathias and Sitnik because the user would then have the ability to position the entertainment unit at a customized location. The wireless and self-contained unit taught by Murphy, in view of Mathias and Sitnik would therefore provide the user with an increased mobility because the unit would not be restricted by wires or permanently mounted to a surface (these aspects are discussed by Mathias on Page 2 Lines 19-21). In addition, the use of multiple input devices, as taught by Mathias, would provide each user the option to select a desired audio program without affecting the other users in the system. The multiple input devices would therefore further increase the customization of the entertainment unit by allowing the user to make personalized audio selections.

Sitnik additionally discloses that the audio distribution system can wirelessly transmit audio signals using infrared LED band and 100 MHz, 300 MHz, 450 MHz, 900 MHz, and 1.6 GHz band FM systems (Col. 13 Lines 58-66; with further reference to Col. 11 Lines 19-24). Sitnik also discloses the transmission of high fidelity stereo and digital stereo signals (Col. 11 Lines 35-44). However, Sitnik does not explicitly disclose that the transmitter transmits the selected audio output on left and right frequencies, the left and right frequencies being different from each other and ranging from approximately 2.3 MHz to approximately 3.0 MHz.

In a similar field of invention, Yamada teaches a sound reproducing device transmitting a 2-channel audio signal for reproduction by a 2-channel speaker system,

such as earphones (Abstract). In a similar fashion to Sitnik, Yamada's transmitter (Adapter 10 of Fig. 11) uses infrared to wirelessly distribute audio signals to Headphones 10 (Fig. 1, as described in Col. 4 Lines 24-43 and Col. 10 Lines 31-65). Yamada also demonstrates the use of different carrier frequencies for the left (SL) and right (SR) speakers of the headphones, where the SL is transmitted at 2.3 MHz and SR is transmitted at 2.8 MHz (as disclosed in Col. 10 Lines 42-60).

Both Sitnik and Yamada teach similar techniques for distributing stereo audio signals to wireless headphone units using infrared signals. Sitnik demonstrates the use of infrared signals ranging from 100 MHz to 2.6 GHz. Yamada also demonstrates that the use of infrared signals within 2.3 MHz to 3.0 MHz is a viable design choice for wireless audio distribution. In view of the teachings of Yamada, one of ordinary skill in the art at the time of the invention would have found it obvious to try different frequency ranges for audio distribution in the system of Sitnik in order to avoid transmission channels experiencing interference.

35. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy, Mathias, Sitnik, and Yamada as applied to Claim 29 above, and further in view of Berry et al. US Patent (5,311,302) "Berry".

36. In regards to Claim 37, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit of Claim 29, but do not teach wherein the at least one display device employs touch screen technology.

In a similar field of invention, Berry teaches an entertainment system for use in a vehicle that includes individual seat interactive video terminals as shown in Fig. 6. Berry's entertainment system delivers both video and audio from a variety of sources as shown in Fig. 7, with reference to entertainment section 12a to deliver both audio and video, headphones 34 to output audio, and LCD display screen to output video, as disclosed in Col. 3 Lines 18-30. In addition, Berry's system may accommodate multiple users performing multiple tasks, as disclosed in Col. 3 Lines 31-45. Further more, Berry's system consists of touch screen panel 24 to allow the user to make selections based on the video output from LCD display screen 22.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the entertainment unit as taught by the combination of Murphy, Mathias, Sitnik, and Yamada with the touch screen display panel, as taught by Berry because a touch screen provides a more convenient interface for the user in comparison to a push button switch or remote control (as disclosed by Berry in Col. 1 Lines 46-61).

37. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit of Claim 29 above, and further in view of Motcki et al. US Patent (6,243,645 B1) "Motcki".

38. In regards to Claim 38, Murphy, Mathias, Sitnik, and Yamada teach the entertainment unit of Claim 29, but do not teach wherein the at least one display device includes one of picture-in-picture and split screen capability.

In a similar field of invention, Motcki teaches an audio-video output device with the capability of accommodating multiple input devices, both audio and video in nature. In addition, the video from multiple sources may be presented to the user on a single display device using split screen technology (as shown in Fig. 1, with further reference to Col. 2 Lines 20-67).

It would have been obvious to one of ordinary skill in the art at time of the invention to combined the entertainment unit taught by the combination of Murphy, Mathias, Sitnik, and Yamada with the use of split screen technology as taught by Motcki because the use of a single display to simultaneously present multiple audio-video programs would provide the user with a compact and space saving device, which is ideal in a passenger vehicle application because of space restrictions (as discussed by Moticki in Col. 1 and Col. 2).

Conclusion

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK A. RYAN whose telephone number is (571)270-5086. The examiner can normally be reached on Mon to Thur, 8:00am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Beliveau can be reached on (571) 272-7343. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. A. R./
Examiner, Art Unit 2427
Tuesday, September 29, 2009

/Scott Beliveau/
Supervisory Patent Examiner, Art Unit 2427